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ABSTRACT

Although leadership has been a major research topic for decades, the study of women in leadership positions is a recent phenomenon. To examine the effects of selection agent expertise and various gender factors upon the influence and perceived expertise of male and female leaders, and upon group cohesiveness, both male (N=69) and female (N=80) leaders were selected by an agent (male or female, expert or nonexpert) to lead groups whose task involved ranking the importance of areas of study for either a "masculine" or "feminine" academic major. After completing the rankings, group members answered questionnaires and received feedback indicating the group's average ranks and also the leader's ranking. Based on this feedback, students reranked the items and completed a second questionnaire. Data analyses showed that while the influence of the leaders was unaffected by the manipulations, ratings of expertise and group cohesiveness were affected. Leaders selected by experts were given higher expertise ratings than were those selected by nonexperts, as were leaders working on masculine as opposed to feminine tasks. Also, in the feminine task condition, perceived expertise was higher for female leaders chosen by female agents. Cohesiveness ratings were highest for groups with leaders chosen by experts, except for groups with male leaders and masculine tasks, where cohesiveness ratings were higher when the agent was a nonexpert. Given the gender differences found here, ratings of leader characteristics could systematically discriminate against either male or female leaders when compared to influence measures. (Author/PAS)

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Abstract

The effects of selection agent expertise and various gender factors upon the influence and perceived expertise of male and female leaders, and upon group cohesiveness, were examined. Leaders (male or female) were selected by an agent (male or female, expert or nonexpert) to lead groups working on either a masculine or a feminine task. While the influence of the leaders was unaffected by the manipulations, ratings of expertise and group cohesiveness were affected. Leaders selected by experts were given higher expertise ratings than were those selected by nonexperts, as were leaders working on masculine as opposed to feminine tasks. Also, in the feminine task condition, perceived expertise was higher for female leaders and for leaders chosen by female agents. Cohesiveness ratings were highest for groups with leaders chosen by experts, except for groups with male leaders and masculine tasks, where cohesiveness ratings were higher when the agent was a nonexpert. The implications of these results for the effects of selection agent and task characteristics in leader selection, and issues of criterion selection in leadership research, are discussed.

Effects of Sex Differences on Leader Influence and Performance Evaluations

Knight and Weiss (1980) recently examined effects of the expertise of agents (expert vs. nonexpert) who select group leaders, and found that leaders chosen by experts were seen as having greater task expertise than leaders selected by nonexperts. Their study illustrated two important aspects of leadership. First, method of leader selection, specifically characteristics of selection agents, can have important implications for leader influence. Second, by using both measures of leader influence and performance ratings, the issue of how best to measure leader effectiveness was raised. While leader influence is an important practical criterion, leadership research has relied almost exclusively upon performance ratings (cf., Bass, 1981). To the extent that ratings might not reflect leader persuasiveness and effectiveness, greater emphasis upon influence is needed.

Although leadership has been a major research topic for decades, the study of women in leadership positions is a relatively recent phenomenon. In fact, there has recently been a virtual explosion of studies on female leaders (Larwood & Lockheed, 1979). Despite this trend, however, there is no research on female leaders' influence. Most of the research has used performance ratings as the major dependent variable. This is particularly troublesome, since ratings of female leaders may be especially susceptible to various biases.

Procedure

This study was designed to extend Knight and Weiss' (1980) research, to examine sex differences, and to compare influence measures with leadership ratings for male and female leaders. Knight and Weiss' procedure was used. Subjects (N = 149 introductory psychology students, 80 females, 69

males) met in groups (mean size = 5.5) which included either a male or female confederate. The subjects were told that the study was concerned with the effectiveness of various communication networks, and that their group would be operating under conditions in which all communication was to be channeled through a group leader, to be selected at a later meeting. This cover story was used to prevent communication between group members which might result in the discovery of the bogus nature of feedback provided later in the study. The task the group worked on involved ranking the importance of areas of study for either a "masculine" or "feminine" academic major. (In an earlier pilot study, other students (N = 42, 18 females, 24 males) had estimated the proportion of females in 76 majors. The major with the highest estimated proportion of women (Early Childhood Education, $\underline{M}$ = .83) was the "feminine" major used; that with the lowest proportion of women (Agricultural Mechanization, $\underline{M}$ = .14) was the "masculine" major.) During the first meeting the subjects ranked eight areas of study for one or the other of these majors.

Two to four days later, the group reassembled and the leader was selected by a second confederate, who was introduced as either an expert in the relevant major (i.e., a visiting professor in that department) or as a nonexpert (i.e., a visiting professor in statistics; the mean estimated proportion of female majors in statistics was .50). In half the groups this agent was a male, in half a female. The first confederate was always chosen to be the leader, ostensibly on the basis of the selection agent's examination of the earlier rankings. These factors formed a two (leader gender) by two (selection agent expertise) by two (selection agent gender) by two (sex-type of task) factorial design.

After individually ranking eight new areas of study, each subject

completed the first of two questionnaires, and then received feedback indicating that the group's average ranks were similar to his or her own, but that the leader disagreed on four of the items. Specifically, the bogus group and leader ranks were designed in such a way that the relationship between the subject's ranks, the leader's ranks, and the group ranks was the same for all subjects independent of their initial ranks (see Table 1a). After examining this feedback, the subjects reranked the items. Later, leader influence was computed by taking the sum of the changes on those four items in the direction of the leader's ranks. For example, the subject whose responses are shown in Table 1b would receive a leader influence score of five. After reranking the items the subjects completed the second questionnaire and were fully debriefed.

In addition to the leader influence measure, two dependent variables were of particular interest. On the first questionnaire subjects used 6-point Likert scales to indicate their agreement or disagreement with the following statements: (a) "The leader of my group knows more about (agricultural mechanization/early childhood education) than do the group members"; and (b) "The leader of my group was chosen because of his/her competence in (agricultural mechanization/early childhood education)". Responses to these two items were positively related ($r = .56$, $p < .001$), and the scale formed by their sum had a coefficient alpha reliability of .72. This scale served as the measure of perceived leader expertise.

Also on the first questionnaire, subjects indicated the extent of their agreement with the following statements on 6-point Likert scales: (a) "I like the members of my group"; (b) "I like the leader of my group"; and (c) "My group is composed of compatible individuals." The mean intercorrelation among these items was .66 ($p < .001$), and the three-item scale

formed by their sum had a coefficient alpha reliability of .85. This index served as a measure of group cohesiveness.

Results

Manipulation Check

To check the expertise manipulation, subjects indicated their agreement with the following statement on a 6-point Likert scale: "The person who selected the leader of my group is an expert in (agricultural mechanization/early childhood education)." As expected, subjects in the expert agent condition agreed more strongly than those in the nonexpert condition (Ms = 4.08, 2.12 respectively; F (1,147) = 49.62, $p < .001$).

Leader Influence

To see whether Knight and Weiss' (1980) expertise effects were replicated, influence scores for the conditions most closely corresponding to theirs (expert vs. nonexpert male agents, selecting male leaders for masculine tasks) were compared. Although not significant, F (1,18) = 1.84, $p > .05$, this difference was large and in the expected direction. In fact, when these cell means are compared to Knight and Weiss' (1980) means (both standardized to remove scale differences), they are found to be very similar (see Table 2). Failure to find a significant effect in this study is at least partially due to reduction in power resulting from small cell sizes (Ns = 10).

A four-way mixed model analysis of variance was conducted on the influence measure, with expertise as a random factor and the gender variables as fixed factors (Winer, 1971, pp. 345-346). Although the standardized means for corresponding cells in this study and Knight and Weiss' (1980) study were very similar, the analysis of variance revealed no significant main effects or interactions on the leader influence measure.

Perceived Leader Expertise

Analysis of the perceived leader expertise scale yielded two significant main effects. Leaders selected by expert agents were themselves rated as being more expert (M = 8.00) than leaders selected by nonexpert agents (M = 7.08), F (1,133) = 4.36, $p < .05$. This replicates the findings of Knight and Weiss (1980) regarding the effects of agent expertise upon perceptions of leader expertise. The second significant main effect involved the task sex-type factor. Leaders whose groups were working on the masculine task were rated as being more expert than those whose groups were working on the feminine task (Ms = 8.06, 6.96 respectively), F (1,1) = 457.76, $p < .05$. The only other effect approaching significance was the leader gender by agent gender by task sex-type interaction, F (1,1) = 160.09, p = .05 (see Table 3). When the task was feminine, perceived leader expertise was greater both when the leader was female and when the agent was female. When the task was masculine, perceived leader expertise was highest when a male leader was chosen by a female agent, with all other means roughly equivalent.

Group Cohesiveness

Analysis of variance of the group cohesiveness measure revealed two significant interactions. The leader gender by agent expertise interaction was significant, F (1,133) = 4.18, $p < .05$ (see Table 4), as was the leader gender by agent expertise by task sex-type interaction, F (1,133) = 6.10, $p < .05$ (see Table 5). The two-way interaction shows that among groups with female leaders, cohesiveness was greater when the selection agent was an expert, while in groups led by a male, cohesiveness was greater when the leader was chosen by a nonexpert. These effects were further moderated by the sex-type of the task, as indicated by the three-way

interaction. When the group was working on the feminine task, cohesiveness was greater when the agent was an expert. Leader gender had little effect in this condition. When the group was working on the masculine task a very different pattern emerged. With female leaders cohesiveness was greater when the agent was an expert, just as with the feminine task. In contrast, with a male leader cohesiveness was greater when the agent was a nonexpert and much lower when the agent was an expert.

Discussion

The results of this study have important implications for leadership in general, and for women in leadership positions in particular. To begin, this study replicated the findings of Knight and Weiss (1980) regarding the effects of agent expertise upon perceptions of leader expertise: Leaders selected by expert agents were attributed with more expertise by the subjects than were those chosen by nonexpert agents. Knight and Weiss' (1980) findings concerning the effects of agent expertise upon leader influence, however, appear to be less general, as there were no significant effects in the analysis of the influence measure. Apparently other factors, such as task characteristics, have an impact upon whether perceptions of task expertise translate into task influence. The identification of such characteristics may be a useful avenue for further research.

In addition to replicating Knight and Weiss' (1980) results, there were two significant effects on perceived leader expertise involving the gender factors. First, leaders working on the masculine task were rated as having greater expertise. This was an unexpected result, but further analyses revealed a possible explanation for it. On the first questionnaire, before receiving the bogus feedback, the subjects were asked to indicate their agreement with the following statement: "I did quite well on the

ranking task." A t-test between task sex-type conditions was significant for this item, t (147) = 2.95, $p < .01$, with subjects in the feminine task condition agreeing more strongly (M = 4.31) than those in the masculine task condition (M = 3.84). It is possible that since the subjects in the feminine task condition believed they had performed better, they subsequently discounted evidence of the leader's expertise regardless of the expertise manipulation.

The second significant effect was the three-way interaction between all of the gender factors. When the task was feminine, perceived leader expertise was greater both when the leader was female and when the selection agent was female. When the task was masculine, a more ambiguous pattern of results was obtained, with male leaders selected by female agents receiving higher ratings than the other conditions. It thus appears that stereotypes concerning the gender composition of these academic fields extend to assumptions about differences in the expertise of men and women only for the feminine task. This is not surprising, given the greater emphasis upon women entering and successfully competing in traditionally "masculine" curricula, as opposed to men entering traditionally "feminine" curricula. The fact that the highest expertise rating in the masculine task condition was for the male leader chosen by a female agent is interesting, and consistent with findings that when men and women are equally successful on masculine tasks (as ratings of agent expertise in this study indicate was the case for the male and female agents), the women's performance is rated higher (Bigoness, 1976; Taynor & Deaux, 1973). Such an effect, generalizing to the selected leaders, could explain why the male leader was rated higher when chosen by a female agent, though why the same was not true for the female leader is problematic.

Significant effects involving the gender factors were also found for the group cohesiveness measure. For groups working on the feminine task, cohesiveness was greater when the selection agent was an expert on that task. This finding makes sense, as it might be expected that group members would feel better about the others in the group, including the leader, knowing that the leader was chosen by a person with knowledge about the group's task. When the leader is picked by a person lacking task expertise, doubts about the group's performance and other concerns may serve to reduce conesiveness.

With the masculine task, similar results were obtained when the leader was female: cohesiveness was greater when the agent was an expert. When the leader was male, however, the pattern was reversed, and cohesiveness was much lower when the agent was expert than when the agent was nonexpert. To understand why this might happen, recall that the subjects believed that they knew relatively little about Agricultural Mechanization. It may be that selection of a gender congruent leader by an expert on this task served to communicate that the leader was very different than the other members of the group, and since it has been shown that interpersonal similarity is an important antecedent of attraction (Aronson, 1969; Berscheid & Walster, 1969; Byrne, 1971), the salience of the leader's dissimilarity may have served to reduce group cohesiveness. When the male leader was chosen by a nonexpert, the subjects could more easily discount the agent's opinion and cohesiveness remained high. Clearly, research is needed to specifically test this explanation, though the results do indicate the potential for differential effects of male and female leaders on the cohesiveness of masculine-task groups.

Finally, and perhaps most interesting for the comparison of male and female leaders, is the contrast between the ratings criteria results and the influence criterion results. The gender-related factors had no effect upon how much influence the leader had over the task performance of the subjects. This is an encouraging finding, since gender should be an irrelevant factor in peoples' reactions to organizational leaders. There were, however, several significant effects involving gender factors upon the ratings criteria. Ratings of leader expertise and group cohesiveness in this study, therefore, did not accurately reflect actual leader persuasiveness. As noted earlier, most leadership research relies upon just such ratings. If organizational management is only concerned with perceptions of leaders and with employee attitudes toward the organization, then the use of ratings criteria does not present a problem. If, however, management is concerned with a leader's ability to influence his or her subordinates, then ratings criteria do not seem to provide a valid measure of this ability. Further, while female leaders were not at a disadvantage relative to male leaders on the ratings used in this study, this may not be the case with all ratings in all situations. Clearly, given the gender differences found here, ratings of leader characteristics could systematically discriminate against either male or female leaders when compared to influence measures. To the extent that actual task influence is a primary concern in organizations, measures of such influence need to be developed.

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Table 1

Relationship between Subject Ranks on Problem Two and Leader and Group Feedback

a. Correspondence between Ranks

Individual Ranks	Group Ranks	Leader's Ranks
1	1	6
2	3	2
3	2	3
4	4	8
5	7	5
6	6	1
7	5	7
8	8	4

b. Example of Feedback Provided to Subjects

Area	Individual Ranks	Group Ranks	Leader's Ranks	Subject's Second Ranks
Economics	4	4	8	6
Food processing	2	3	2	2
Law	7	5	7	7
Oral Communication	6	6	1	3
Design of Materials	8	8	4	8
Biology	1	1	6	1
First Aid and Accident Prevention	5	7	5	5
Algebra	3	2	3	4

Table 2

Cell Means for Perceived Leader Expertise

a. Feminine Task

	Male Agent	Female Agent	Total
Male Leader	5.59	6.29	5.94
Female Leader	6.94	8.70	7.87
Total	6.29	7.59	6.69

b. Masculine task

	Male Agent	Female Agent	Total
Male Leader	7.95	9.00	8.45
Female Leader	7.85	7.53	7.69
Total	7.90	8.24	8.06

Table 3

Standardized Leader Influence Scores for

Male Agent, Male Leader, and Masculine Task Conditions

	Knight and Weiss (1980)	Knight and Saal
Expert Agent	+.27	+.30
Nonexpert Agent	-.29	-.30

Table 5

Cell Means for Group Cohesiveness:

Expertise by Leader Gender by Task Sex-Type Interaction

a. Feminine Task

	Expert Agent	Nonexpert Agent	Total
Male Leader	15.24	14.41	14.82
Female Leader	15.39	14.80	15.08
Total	15.31	14.62	14.96

b. Masculine Task

	Expert Agent	Nonexpert Agent	Total
Male Leader	13.47	15.84	14.66
Female Leader	15.21	14.20	14.69
Total	14.34	15.00	14.68

Table 4

Cell Means for Group Cohesiveness:

Expertise by Leader Gender Interaction

	Expert Agent	Nonexpert Agent	Total
Male Leader	14.31	15.17	14.74
Female Leader	15.30	14.50	14.88
Total	14.82	14.81	14.81